

## Annuity Problems

p522-523 q 1-17

Chapter Self test

p524 q 1-11

Wed June 14th  
Culminating All Morning

May 31-7:52 AM

## Determine by Hand

4. Your mother wants to give you \$25 000 in 15 years' time. How much should she invest now at 8%/a interest compounded monthly to meet this goal?

Jan 7-7:22 AM

## Determine by Hand

4. Your mother wants to give you \$25 000 in 15 years' time. How much should she invest now at 8%/a interest compounded monthly to meet this goal?

$$A = P_0(1+i)^n$$

$$A = 25000$$

$$P(0) =$$

$$i = 0.08 / 12 = 0.0067$$

$$n = 15 \times 12 = 180$$

$$25000 = P(0)(1 + 0.0067)^{180}$$

$$25000 = P(0)(1.0067)^{180}$$

$$25000 = P(0)(3.3267)$$

$$25000 = P(0)$$

$$3.3267$$

$$7514.95 = P(0)$$

She would need to invest \$7514.95 today.

Jan 7-7:22 AM

## Determine by Hand

8. At the end of every 6 months, Parvati deposited \$200 into a savings account that paid 3.5%/a compounded semi-annually. She made the first deposit when her son was 6 months old and the last deposit on his 18th birthday. The money remained in the account until he turned 21. How much did Parvati's son receive?

Jan 7-7:25 AM

## Determine by Hand

8. At the end of every 6 months, Parvati deposited \$200 into a savings account that paid 3.5%/a compounded semi-annually. She made the first deposit when her son was 6 months old and the last deposit on his 18th birthday. The money remained in the account until he turned 21. How much did Parvati's son receive?

$$A = R \left[ \frac{(1+i)^n - 1}{i} \right]$$

$$A = ?$$

$$R = 200$$

$$i = 0.035 / 2 = 0.0175$$

$$n = 18 \times 2 = 36$$

$$A = 200 \left[ \frac{(1 + 0.0175)^{36} - 1}{0.0175} \right]$$

$$A = 200 \left[ \frac{(1.0175)^{36} - 1}{0.0175} \right]$$

$$A = 200 \left[ \frac{1.8474 - 1}{0.0175} \right]$$

$$A = 200 \left[ \frac{0.8474}{0.0175} \right]$$

$$A = 200 \left[ 48.423 \right]$$

$$A = 9684.6$$

When he turns 18 he will have \$9684.6

$$A = P_0(1+i)^n$$

$$A = ?$$

$$P_0 = 9684.6$$

$$i = 0.0175$$

$$n = 3 \times 2 = 6$$

$$A = 9684.6(1.0175)^6$$

$$A = 9684.6(1.1099)$$

$$A = 10720.61$$

When he turns 21 he will have \$10720.61.

Jan 7-7:25 AM

## Using the TI83

9. David is 8 years old when his parents start an education fund. They deposit \$450 at the end of every 3 months in a fund that pays 8%/a compounded quarterly.
- How old is David when the fund is worth \$20 000?
  - How much less time would it take to build the fund to \$20 000 if the regular deposit were \$550?

Jan 7-7:25 AM

TVM Advanced Calculator

Mode

End

Beginning

Present Value

0

PV

Payment

-450

PMT

Future Value

20,000

FV

Annual Rate (%)

8

Rate

Periods

32.12

Periods

Compounding

Quarterly

Reset

It will take 32.12 quarters  
Just over 8 years) to earn  
\$20 000.

Jun 11-9:13 AM

TVM Advanced Calculator

Mode

End

Beginning

Present Value

0

PV

Payment

-550

PMT

Future Value

20,000

FV

Annual Rate (%)

8

Rate

Periods

27.6

Periods

Compounding

Quarterly

Reset

Jun 11-9:17 AM

Using the TI83

9. David is 8 years old when his parents start an education fund. They deposit \$450 at the end of every 3 months in a fund that pays 8%/a compounded quarterly.

a) How old is David when the fund is worth \$20 000?

b) How much less time would it take to build the fund to \$20 000 if the regular deposit were \$550?

N=

32.12

I%=

8

PV=

0

PMT=

-450

FV=

20,000

P/Y=

4

C/Y=

4

END

32

4

= 8 years

8 + 8 = 16 years old

N=

27.60

I%=

8

PV=

-550

PMT=

-550

FV=

20,000

P/Y=

4

C/Y=

4

END

27.60

4

= 6.9

Not quite 15 years old.

Jan 7-7:25 AM

Using the TI83

9. Kay Chung wants to travel to China in 20 months. The trip will cost \$3200. How much should she deposit at the end of each month in an account that pays 9%/a compounded monthly to save \$3200?

N=

20

I%=

9

PV=

0

PMT=

-148.90

FV=

3200

P/Y=

12

C/Y=

12

END

Jan 7-7:27 AM

TVM Advanced Calculator

Mode

End

Beginning

Present Value

0

PV

Payment

-148.90

PMT

Future Value

3,200

FV

Annual Rate (%)

9

Rate

Periods

20

Periods

Compounding

Monthly

Reset

Jun 11-9:21 AM

Using the TI83

9. Kay Chung wants to travel to China in 20 months. The trip will cost \$3200. How much should she deposit at the end of each month in an account that pays 9%/a compounded monthly to save \$3200?

N=

20

I%=

9

PV=

0

PMT=

-148.90

FV=

3200

P/Y=

12

C/Y=

12

END

She will need regular payments of  
\$ 148.90.

Jan 7-7:27 AM

## Using the TI83

8. Claire buys a snowboard for \$150 down and pays \$35 at the end of each month for 1.5 years. If the finance charge is 16%/a compounded monthly, determine the selling price of the snowboard.

N=  
I%=  
PV=  
PMT=  
FV=  
P/Y=  
C/Y=  
END

Jan 7-7:32 AM

556.82 + 150  
706.82

Jun 11-9:27 AM

## Using the TI83

8. Claire buys a snowboard for \$150 down and pays \$35 at the end of each month for 1.5 years. If the finance charge is 16%/a compounded monthly, determine the selling price of the snowboard.

N=  $1.5 \times 12 = 18$   
I%= 16  
PV=  $556.82 + 150$   
PMT= -35  
FV= 0  
P/Y= 12  
C/Y= 12  
END

706.82 for the snowboard

Jan 7-7:32 AM

Dec 20-7:42 AM